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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/753,339	12/29/2000	Lyndon Y. Ong	61473/0269205	8404

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EXAMINER	
ELALLAM, AHMED	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 02/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/753,339	ONG, LYNDON Y.	
	Examiner	Art Unit	
	AHMED ELALLAM	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-6 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This responsive to Amendment filed on October 12, 2004.

Claims 1, 3-6 and 8 are pending.

All pending claims are rejected.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 4 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Borella et al, US (6,643,259).

Regarding claim 4, Borella discloses a method of controlling congestion in a communication network (see figure 1) comprising:

Entering a congestion avoidance state when some form of congestion has been detected. (Claimed detecting a potential network congestion condition);

Borella also discloses setting the congestion window to a value threshold cwnd*. See column 13, lines 65-67, and column 14, lines 1-13. (Claimed controlling new traffic emitted into the network to be no more than a current unacknowledged traffic load of the network at the time of detection).

Examiner interpreted the cwnd* as being the amount of unacknowledged traffic from the sender 14 on the network before receiving acknowledgments.

Regarding claim 5 , Borella discloses that the data network can be a campus network or a private network. See column 3, lines 1-5, and 17-20.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 3, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borella in view of Ohyama et al, US (6,278,691).

Regarding claim 1, Borella discloses a method of controlling congestion between a first sender (figure1, unit 14 and a second sender (figure 1, unit 16) in a communication network (see figure 1) comprising:

Entering a congestion avoidance state when some form of congestion has been detected. (Claimed detecting a potential network congestion condition);

Wherein during the congestion avoidance state, a congestion window (cwnd) is increased so that the first device 14 transmits traffic in accordance with the available bandwidth in the network (claimed desired fixed bandwidth), see column 9, lines 64-67 and column 10, lines 1-13. (Claimed upon detection of a potential network congestion condition between a sender and a receiver in the communication network, the connection having a desired fixed bandwidth).

Borella does not disclose connection bandwidth is lesser of a current amount of unacknowledged traffic emitted by the sender into the network at the time of detection of the congestion condition and a current receiver buffer size at that time.

However, Ohyama discloses providing a congestion window (Examiner interpreted the congestion window as the bandwidth of the connection) for controlling congestion, and the receiver buffer size is compared with the congestion window size and uses the smaller window in transition. (Connection bandwidth is lesser of a current amount of unacknowledged traffic emitted by the sender into the network at the time of detection of the congestion condition and a current receiver buffer size at that time). See column 5, lines 66-67 and column 6, lines 1-11.

Therefore, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to prevent the overflowing of Borella's receiver buffer using the congestion window method taught by Ohyama so that in addition to receiving new traffic at a congested phase of Borella, measures would be taken to not overflow the receiver buffer. The benefit would be better bandwidth utilization due to less congestion due to the receiver's buffer congestion eliminations.

Regarding claim 3 , Borella discloses that the data network can be a campus network or a private network. See column 3, lines 1-5, and 17-20.

Regarding claim 6, Borella discloses a method of controlling congestion in a communication network (see figure 1) comprising:

Entering a congestion avoidance state when some form of congestion has been detected. (Claimed detecting a potential network congestion condition);

Borella also discloses setting the congestion window to a value threshold cwnd*. See column 13, lines 65-67, and column 14, lines 1-13. (Claimed setting a congestion window size to a prescribed value so that the amount of unacknowledged traffic from the sender on the network does not exceed the window size).

Examiner has interpreted the cwnd* as being the amount of unacknowledged traffic from the sender 14 on the network before receiving acknowledgments.

Borella also discloses that the second network device (figure 1, unit 16) advertises to the first network device an offered window (awnd) representing data that the second device can currently receive without overflowing its buffer. See column 8, lines 3-15.

Borella does not specify a window size that is lesser of a current amount of unacknowledged traffic from the sender on the network and a current receiver buffer size.

However, Ohyama discloses providing a congestion window for controlling congestion, and the receiver buffer size is compared with the congestion window size and uses the smaller window in transition. (Claimed a window size that is lesser of a current amount of unacknowledged traffic emitted by the sender into the network at a time of detection of the congestion condition and a current receiver buffer size at that time). See column 5, lines 66-67 and column 6, lines 1-11.

Therefore, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to prevent the overflowing of Borella's receiver buffer using the congestion window method taught by Ohyama so that in addition to receiving

new traffic at a congested phase of Borella, measures would be taken to not overflow the receiver buffer. The benefit would be better bandwidth utilization due to less congestion due to the receiver's buffer congestion eliminations based on considering the unacknowledged traffic bandwidth utilization.

Regarding claim 8, Borella discloses a method of controlling congestion in a communication network (see figure 1) comprising:

Entering a congestion avoidance state when some form of congestion has been detected. (Claimed detecting a potential network congestion condition);

Wherein during the congestion avoidance state, a congestion window (cwnd) is increased so that the first device 14 transmits traffic in accordance with the available bandwidth in the network, see column 9, lines 64-67 and column 10, lines 1-13. Borella also discloses a second network device (figure 1, unit 16) that advertise to the first network device an offered window (awnd) representing data that the second device can currently receive without overflowing its buffer. See column 8, lines 3-15.

Borella does not disclose a controlling bandwidth of the connection to be no more than the lesser of unacknowledged traffic level at the time of the detection and a receiver buffer size.

However, Ohyama discloses providing a congestion window (Examiner interpreted the congestion window as the bandwidth of the connection) for controlling congestion, and the receiver buffer size is compared with the congestion window size and uses the smaller window in transition. (Claimed a window size that is lesser of a

current amount of unacknowledged traffic from the sender on the network and a current receiver buffer size). See column 5, lines 66-67 and column 6, lines 1-11.

Therefore, it would have been obvious to an ordinary person of skill in the art at the time the invention was made to prevent the overflowing of Borella's receiver buffer using the congestion window method taught by Ohyama so that in addition to receiving new traffic at a congested phase of Borella, measures would be taken to implement bandwidth optimization. The benefit would be less congestion due to the receiver's buffer congestion eliminations.

Response to Arguments

4. Applicant's arguments filed October 14, 2004 have been fully considered but they are not persuasive.

Applicant argues that the references of Borella and Ohyama do not disclose ".. desired fixed bandwidth is the lesser of a current amount of unacknowledged traffic emitted by the sender into the network at the time of detection of the congestion condition, and a current receiver buffer size at that time..". Applicant further alleged that Borella only discloses " the limiting value of the congestion window is the constant bit rate multiplied by the round trip delay...". Examiner respectfully disagrees, because what is important is the fact that Borella discloses a congestion window that varies with the traffic demand and traffic type (in the case of constant bit rate). Applicant stated that the motivation to combine the references of Borella and Ohyama couldn't be combined because there is no motivation, Applicant further stated that Borella's TCP's window

probing and round-trip delay estimation process cause TCP to artificially limit throughput on CBR channels". Examiner notes that the teaching of Borella is not restricted to CBR, the CBR is only one feature of Borella's TCP windowing, Borella also teaches the case of non-CBR traffic for example on column 9, lns 38-43 where it is stated:

"**The rate at which packets are introduced into the data network 10 are gated according to the rate that ACKs are returned to the first network device 14, thus maintaining conservation of flow between the first network device 14 and the second network device 16".** The fact that the rate of the packets depends on the rate of received acknowledgments suggest that the unacknowledged traffic is also considered and that sets the congestion window accordingly. Such feature in combination of the receiver buffer thresholds taught by Ohyama can be combined to teach the required invention. The motivation is found in Ohyama comparing of the receiver buffer size to the congestion window size and uses the smaller window in transition, to account for the actual bandwidth that depends on the acknowledged traffic and receiver buffer constraints. It should be noted that the fact that the congestion window depends on the acknowledged traffic and the non-acknowledged traffic, because the source of traffic assumingly knows the capacity of the link in case of no congestion, and based on that some measure must be taken to account for the non-acknowledged traffic.

Examiner believes that the rejection above is proper.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to AHMED ELALLAM whose telephone number is (571) 272-3097. The examiner can normally be reached on 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kizou Hassan can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AHMED ELALLAM
Examiner
Art Unit 2662
February 18, 2005

JOHN PEZZLO
PRIMARY EXAMINER